CLAIMS

1. An image sensor comprising an array of rows (i) and columns (j) of pixels (X_{ij}), all the pixels of one column of the array being connected to at least one common pixel output line (l_j) having at least one memory element (M_j) and at least a first amplifying element (A_j), all these amplifying elements (A_j) being connected to a common output amplifier (D), characterised in that the sensor further comprises:

- a second amplifying element (B_j) on the output of the memory element (M_j),
- said common output amplifier (D) having at least two input terminals,
- means (S1) for switching the pixel's signal on the common output line (l_j) and the memory element's signal (M_j) to respectively third and second amplifying elements (A_j and B_j) of one column, and
- means (S2) for switching the two output signals of the amplifying elements (A_j, B_j) of one column to respectively first and second input terminals of said common output amplifier (D).

2. An image sensor as recited in claim 1, wherein said switching means comprise at least one cross-bar switch.

3. An image sensor comprising an array of columns and rows of pixels (X_{ij}), all the pixels of one column of the array being connected to at least one common pixel output line (l_j) having at least one memory element (M_j) and at least one amplifying element (A_j), all these amplifying elements (A_j) being connected to a common output amplifier (D), characterised in that before the amplifying

element (A_j), the common pixel output line (l_j) is divided through switches ($S4_j$ and $S5_j$) in two parallel circuits, at least one circuit having said memory element (M_j).

4. An image sensor as recited in claim 3, wherein both circuits have a memory element (Ms_j and Mr_j).

5. An image sensor comprising an array of columns and rows of pixels (X_{ij}), all the pixels of one column of the array being connected to at least one common pixel output line (l_j) having at least one memory element (M_j) and at least one amplifying element (A_j), all these amplifying elements (A_j) being connected to a common output amplifier (D), characterised in that said common pixel output line (l_j) is being connected through switches ($S7_j$, $S8_j$, $S9_j$ and $S10_j$, $S11_j$) to a memory element (C_j) and an amplifying element (μ_j), where the offset of the amplifying element is stored on the memory element during a first phase of the read-out, and this offset is subtracted from the signal of the amplifying element during the second phase of the read-out.

6. A method of reading out an array of rows and columns of pixels (X_{ij}) of an image sensor according to claim 1, comprising the steps of :

- amplifying the output signals of essentially each pixel of one column in the first amplifying element (A_j) thereby obtaining a set of amplified pixel output signals,
- amplifying the reference signals of essentially each pixel of one column in the second amplifying element (B_j), thereby obtaining a set of amplified pixel reference signals,
- consecutively, for essentially each pixel (i = 1, 2, 3)

of said column imposing the amplified pixel output signal to a first or a second terminal of said common output amplifier (D) and imposing the amplified pixel reference signal to a second or a first terminal of said common output amplifier (D), while switching the amplified pixel output signal to respectively said first and said second terminals for essentially each consecutive pixel of said column, said reference signal being imposed to the other terminal of said common output amplifier.

7. A method of reading out an array of rows and columns of pixels (X_{ij}) of an image sensor as recited in claim 3, comprising the steps of :

- sampling the signal in a first phase and storing it in a memory element (M_{ij}),
- sampling the signal in a second phase and possibly storing it in another memory element,
- subtracting said first signal from said second signal in a unique output circuit (D).

8. Method as recited in claim 7, wherein said first phase is the reset phase and said second phase is after the integration period.

9. A method of reading out an array of rows and columns of pixels (X_{ij}) of an image sensor as recited in claim 5, comprising the steps of :

- during a first phase, calibrating the output of the amplifying element to a predetermined value,
- storing said value in a memory element during the application of a first signal of said pixel on the line,
- during a second phase, applying a second signal of said pixel on the line in order to have on the output a signal proportional to the difference between first and second signals.

ADD B1